

TI-31754

Patent Amendment

REMARKS

This application has been carefully reviewed in light of the Office Action dated May 22, 2003. Applicant has amended claims 1 and 7-10. Reconsideration and favorable action in this case are respectfully requested.

The Examiner has rejected claims 1-3, 5-11, 13 and 14 under 35 U.S.C. §102(b) as being unpatentable over U.S. Pat. No. 5,920,353 to Diaz et al (hereinafter "Diaz"). Applicants have reviewed this reference in detail and do not believe that it discloses or makes obvious the invention as claimed.

The Examiner has also rejected claims 4 and 12 under 35 U.S.C. §103(a) as being unpatentable over U.S. Pat. No. 5,920,353 to Diaz and U.S. Pat. No. 5,790,208 to Kwak. Applicants have reviewed these references in detail and do not believe that they disclose or make obvious the invention as claimed.

In the present invention, as defined by claims 1, circuitry for processing images includes (1) a random access memory, (2) a motion estimation hardware accelerator coupled to the random access memory, (3) a transform coding hardware accelerator coupled to the random access memory and (4) a processor coupled to the hardware accelerators and to the random access memory for executing software instructions for processing images and video, wherein some of the instructions initiate functions performed by one or more of the hardware accelerators such that the one or more hardware accelerators retrieve data from the random access memory, performs a function on the data, and return a result to the processor.

This is significantly different from Diaz. Diaz does not show a circuit where *an instruction to the processor* (75) causes either motion estimation engine 86 or IDCT (66) to perform a function and return a result to the processor, as described in the present application (see page 30, lines 3-18).

TI-31754

Patent Amendment

The Examiner states that "Diaz also discloses that the processor 75 allows some of the functional blocks of the decoder 200' to be performed in software in the processor 75 to either completely replace some or part of the functional blocks or to allow the function to be performed in either hardware or software."

It is clear from the Diaz specification, that the decoder 200 is a stand-alone audio/video decoder. When used in conjunction with a processor (75) some of the functions normally performed by the decoder (200) can be performed by the processor (75). It appears clear, however, that the audio/video processing of the decoder 200 is being performed under the control of the decoder (200) as an audio/video stream is received by the decoder. The processor (75) does not appear to initiate execution of functions by the various functional blocks of the decoder (200).

The operation of the Diaz device is thus very different from the present invention. In the present invention, the processor is in control of video/image processing. When an instruction is received by the processor which can be handled by the motion estimation hardware accelerator or the transform coding hardware accelerator, the processor initiates execution of the instruction in the accelerator. The accelerator then takes over execution of the instruction by retrieving data from the memory and returning a result to the processor. This functionality is simply not shown in Diaz.

For reasons similar to those set forth in connection with independent claim 1, Diaz does not show the step of independent method claim 7.

The invention described by claims 1 and 7 provides a system that is easily programmed and suitable for varied operations, such as may be encountered in a mobile computing device.

TI-31754

Patent Amendment

Applicants respectfully request allowance of independent claims 1 and 7. Since claims 2-6 and claims 8-14 are dependent upon claims 1 and 7, respectively, Applicants request allowance of these claims as well.

An extension of two months is requested and a Request for Extension of Time under § 1.136 with the appropriate fee is attached hereto.

The Commissioner is hereby authorized to charge any fees or credit any overpayment, including extension fees, to Deposit Account No. 20-0668 of Texas Instruments Incorporated.

Applicants have made a diligent effort to place the claims in condition for allowance. However, should there remain unresolved issues that require adverse action, it is respectfully requested that the Examiner telephone Alan W. Lintel, Applicants' Attorney at (972) 664-9595 so that such issues may be resolved as expeditiously as possible.

For these reasons, and in view of the above amendments, this application is now considered to be in condition for allowance and such action is earnestly solicited.

Respectfully Submitted,



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